TO: Martha Maiden/Code YF/NASA HQ   April 12, 2004
FROM: H. K. Ramapriyan and Paul Davis/Co-Chairs, Earth Science Metrics Planning
and Reporting Working Group (MPARWG)
SUBJECT: Recommendations of the MPARWG regarding metrics and a tool to collect
metrics from the REASoN Projects

The purpose of this decision memorandum is to request your approval to implement the
University of Maryland Performance Metrics Tool (UMDPMT) for the purpose of
collecting and reporting data and services metrics provided by the REASoN Projects.
The Metrics Planning and Reporting Working Group (MPARWG) developed the
recommendations presented here through discussions at the Kick-Off meeting in Orlando
on January 8, 2004, a month-long evaluation of a prototype of the UMDPMT, and a WG
telecon on March 29, 2004. Presented below is a summary of two major actions we
intend to implement once we receive approval to proceed.

- The metrics to be collected will be those listed in Attachment A. These are
  unchanged from the baseline metrics approved by HQ for the REASoN Projects.

- The UMDPMT is currently being prototyped and evaluated at
  http://glcf.umiacs.umd.edu/reason_metrics/. If you would like to experiment with
  the tool, you could sign in as a "test" user (pick project 0 from the pick list) with
  password "test". The MPARWG has evaluated the Web-based tool and has made
  a set of recommendations to improve the tool. The recommendations were
  discussed at the March 29 telecon and are summarized in Attachment B. The
  recommendations fall into implementation during either Phase 1 or 2. The Phase 1
  items are considered necessary for the tool to be implemented by the WG's goal
  of July 1, 2004. Phase 2 items will be considered for future discussion and/or
  implementation. All Phase 1 items are currently being reviewed and considered
  for implementation. The MPAR WG recommends that, with the necessary Phase
  1 modifications, the UMD Metrics Tool be implemented.

- Until the Phase 1 changes to the UMDPMT are completed, the REASoN Projects
  that have officially started will be asked to provide their monthly reports using the
  prototype version of the tool.

Finally, we request that as REASoN Projects are officially started, we receive notification
by email (rama.ramapriyan@nasa.gov) by the respective projects' Study Managers.

We look forward to your decision on this recommendation so that we may implement and
start using the metrics tool by July 1.

Regards,

Rama and Paul.

ATTACHMENT A
PROJECT PERFORMANCE METRICS (DRAFT)

REASoN projects are required to collect and report on the metrics noted in Table A. These data will be reported from the projects on a monthly basis with six month and yearly aggregations of data to coincide with interim reporting obligations. The metric data provided by the REASoN projects, once aggregated, will be made available for public inspection. In addition to the specific metrics listed here, REASoNs are expected to help aid in the development of new metrics through the Metrics Planning and Reporting Working Group and may need to provide additional data beyond those in Table A.

TABLE A: Metrics to be reported by the REASoN project.

	Metric	Definition and Implementation
1	Number of Distinct Users	The number of distinct individual users (based on non-duplicated IP addresses) who request and/or receive products, services and/or other information during the reporting period.
2	Characterization of Distinct Users Requesting Products and Information (by Internet domain)	Classes of users who obtain products and services from the project. The metric will show the relative proportion of users accessing data and services from a) first-tier domains: .com, .edu, .gov, .net, .mil, .org, summary of foreign countries, and unresolved , and b) second-tier domains, such as "nasa.gov", "unm.edu", etc.
3	Number of Products Delivered to Users	The number of separately cataloged and ordered data or information products delivered to users during the reporting period (by project-defined product ID). A 'product' may consist of a number of items or files that comprise a single item in a product catalog or inventory; our intent is to capture the user view of the products provided by the project (e.g., Suppose a Vegetation Index map is a type of product that is generated and kept track of in the inventory on a regional and monthly basis. Then, if 30 users receive a Vegetation Index map of the Eastern U.S. for September 2001 count them as 30 products delivered).
4	Number of Distinct Product Types Produced and Maintained by Project	A product type refers to a collection of 'products' of the same type such as "sea surface temperature" products. The project may add many or few product types through time but these should be tracked independent of the number of 'products' delivered. (This metric is not expected to change frequently and may not require updates on a monthly basis).
5	Volume of Data Distributed	The volume of data and/or data products distributed to users during the reporting period (in GB or TB as appropriate).
6	Total Volume of Data Available for Research and Other Uses	The total cumulative volume, as of the end of the reporting period, of data and products held by the project and available to researchers and other users (GB or TB). This number can include data that is not on-line but is available through other means.

	Metric	Definition and Implementation
7	Delivery Time of Products to Users	Response time for filling user requests during the reporting period. Averaged and standard deviation summary times are to be collected for both electronic (including subscription services) and physical hard media transfers.
8	Support for the ESE Science Focus Areas *(when applicable)*	The REASoN projects will include a quantitative summary of the data products supporting one or more of NASA's science focus areas, and report any changes at the next monthly metrics submission. The focus areas are: weather, climate change and variability, atmospheric composition, water and energy cycle, Earth surface and interior, and carbon cycle and ecosystems.
9	Support for the ESE Applications of National Importance *(when applicable)*	The REASoN projects will include a quantitative summary of the data products supporting one or more of NASA's Applications, , and report any changes at the next monthly metrics submission.. The 12 applications areas are: agricultural efficiency, air quality, aviation safety, carbon management, coastal management, ecosystems, disaster preparedness, energy forecasting, homeland security, invasive species, public health, and water management.
10	Support for ESE Education Initiatives *(when applicable)*	In partnership with the Study Manager the REASoN project will submit data pertaining to the adoption and use of educational products by noted audience categories (to be determined by project and study manager). These groups can include higher education, K-12, museums, informal education, and others as appropriate.

Project Product Mapping

To establish a baseline for the assessment of products and their support of NASA's science and applications' goals all REASoN projects will prepare an initial list of the current and pending products to be made available. The Studies Manager will work with the REASoN project to map these products and services to one or more of the six Science Focus Areas and/or the twelve Applications of National Importance and Education. Monthly reporting of Metric #3 will map the products distributed by the project to the pertinent focus area , application or education user category.

How To Submit Metric Data

The REASoN projects will provide the metric information described above using a NASA designated Internet portal. This on-line tool will allow REASoN project representatives to enter the requested data into a web form and data base that stores this information for later viewing and retrieval. These data must be entered from 7-10 days following the end of the month. The location of the REASoN metric web portal will be provided to each REASoN project by a NASA representative. Only designated NASA representatives will have access to individual project metric data. If technical issues develop where project metric data cannot be added using the web tool, you will be asked to submit this information via email to a NASA representative or studies manager.

ATTACHMENT B

Minutes of MPAR WG March 29, 2004, telecon.

18 members dialed in.

Comments, recommendations and actions were classified as either Phase 1 or 2. Phase 1 being more immediate actions necessary to get the metrics collection tool up and running; Phase 2 are items considered for future discussion and/or implementation.

Phase 1 Items.

1.   Metric #2. The WG asked about the availability of scripts that could automatically parse domain names. Steve Adamson will provide WG members with an algorithm that can parse second-level domain names.

2.   Privacy Act Concerns. The WG needs a reading on how the metrics collection process is affected by Privacy Act / Paperwork Reduction Act regulations, for both the centralized metrics tool and the collection process at each of the REASoN data / service providers. Vanessa suggested that we could use the statement that the DAACs use and replicate it at the REASoN sites in order to inform users of how their information will be used for metrics.

3.   Reporting Frequency. The WG decided on a monthly cycle.

4.   When to Start Reporting. Reporting by each activity would start the month after its negotiations are finalized. This has to be coordinated with NASA study leads.

5.   Important NASA Collection Dates: Typically end-of-fiscal-year, September / October, for annual fiscal summaries required by ESE (NASA HQ).

6.   Metric #2: Questions were raised about the completeness of 2nd-level domain names. Paul will review (possibly examine EDGRS) request and add new names to the list.

7.   Metrics #8, 9, 10: Lots of questions about the form these questions are in. Paul agreed to review structure of these questions and revise accordingly, i.e., have separate entry boxes for categories and values, or relate Metrics #3 – 4, for example, to Metrics #8 – 10.

8.   Metric #8: De-activate the pointer to a voluminous document. Paul will revise web form to give user the size of the document and an option to save for later viewing.

9.   Metrics #8, 9, 10: WG asked a question concerning the validity of reporting on multiple categories within 8, 9, or 10 for a single product. The answer is yes! It would not be unusual for a product to support more than one area.

10.   Metrics #8, 9, 10: The WG accepted a recommendation to add an "Other – please explain" category to each question.

11.   Report Replication: The WG decided that having the capability to automatically replicate last month's report for use in a current month was not a good idea. Having side-by-side columns could help with manual data entry, i.e., last month's entries next to the current month. Paul will examine to see if this is feasible for Phase 1.

12.   Error Correction: The WG asked how do you correct errors in a previous submission? The WG decided: 1) Not to leave the web form 'open' for ad hoc corrections to all months; you can view data but the data can not be overwritten, and 2) the Web form would leave the previous month's collection open after which any corrections should be emailed to Paul. A concern was raised by Paul about the number of emails he may receive under this scenario.

13.   Reporting Deadlines: Two dates were discussed, but no final decision made: 10th or 15th of the month, e.g., March's data would be due by April 10, or 15.

14.   Metrics #7: A concern was raised about combining electronic distribution and non-electronic distribution, e.g., mail, into a single metric. It was recommended that the 2 distribution modes be collected separately. Paul will look into this.

15.   New Activity: Mike Goodman asked that his REASoN project – DISCOVER – be added to the web form. Paul will add to the project list on the front of the Web tool.

Phase 2 Items

1.   Manual vs. Automatic Data Entry: This was recommended for Phase 2 discussion.

2.   Media Distribution: A question was raised about how we should characterize metrics for mass production and distribution of media (e.g., CD-ROMs).

3.   Specification Control: Frank Lindsay recommended that the WG develop the necessary documentation – Interface Requirements Document (IRD) and Interface Control Document (ICD) – to formalize and control the tool's requirements and interface specifications, especially if the WG moves into automated data entry. This was acknowledged by the WG as necessary and will be addressed in the future.

4.   Visual Graphics: The comment was about visual graphics at either the entry form or as a product of the tools' database. It was agreed that this will be discussed as a future item.

5.   Revised Data Level Definitions: Chris Kummerow proposed adding new data / product levels to the current Level 0 – 3 standard definition set. The new levels would help in measuring higher level products that typically are value added and are at reduced volumes. Chris' proposal was distributed to the WG for further discussion.

Summary

1.   Consensus of the WG was that with the proper fixes mentioned above the University of Maryland metrics collection tool is a very good start and should be implemented.

2.   Rama discussed several short turnaround events: 1) Comments on minutes due by c.o.b Friday April 2, 2) Draft recommendations, decide what gets implemented in Phase 1, and send a decision memo to NASA Hq within 10 days.